

Studying Healthcare Personnel's Intention to Click Clickbaits

Neoh Sun Yi Vincent, Anjan Pal, Alton Y. K. Chua

Abstract—The focus of this paper is on clickbaiting, the practice of using clickbaits to lure users into clicking. Drawing from the literature on information processing, this paper argues that individuals' intention to click clickbaits can be predicted as a function of users' considerations, which can be conceptualized as cognitive, affective and pragmatic. Hence, the objective of this paper is to investigate how the three considerations for clicking are associated with intention to click clickbaits. This paper specifically studied the behavior of healthcare personnel while considering health and non-health clickbaits. Data came from 96 healthcare personnel including doctors, nurses, allied healthcare professionals, and medical students in clinical posting from a public hospital in Singapore. Data analysis was done using a hierarchical moderated multiple regression. The topic of clickbaits was the moderator. The results indicated that all the three considerations were significantly related to intention to click. Interestingly, cognitive consideration showed a weaker correlation with intention to click health clickbaits vis-à-vis non-health clickbaits.

Index Terms—Clickbaits, fake news, health, intention to click

I. INTRODUCTION

CLICKBAIT refers to any piece of online content presented through an ostentatious headline that entices readers into clicking an accompanying link [1]. With the Internet's accessibility and absolving anonymity, clickbaits have become increasingly prevalent with little to keep them restrained. The headlines associated with such online content are known to exploit Internet users' curiosity gaps, thereby tempting them to click the headlines [1], [2].

Clickbaiting, the practice of using clickbaits to lure users, has emerged as a powerful tool in the arsenal of content marketers to increase readership and profit. For instance, Taboola, a digital advertising company at the forefront of clickbaits, reportedly doubled monthly readership within a year [3]. Another content marketer company, Outbrain,

boasts that it would generate more than \$100 million through its three-year partnership with Time Inc. with the help of clickbaits [4]. Exemplifying the saying "if you can't beat them, join them" [5], even traditional media organizations have begun employing the practice of clickbaiting to pursue their agendas [3], [6], [7].

Apart from increasing readership and profit, the danger posed by clickbaits is the blurring of the lines between fact and fiction. Given that clickbait headlines tempt readers into clicking, they are pejoratively used to present online content which are sensationalized, turn out to be adverts or are simply misleading. Therefore, these headlines contribute heavily to the piles of fake news and misleading information on the Internet [2], [8]. Specifically, when it comes to information about health issues, the Internet often resembles a cocktail conversation rather than a tool for effective healthcare communication. For instance, health-related clickbaits such as "Is Drinking Wine Better Than Going To The Gym?" have the potential to impair individuals' healthcare decision-making as well as their well-being [9].

On the scholarly-front, the amount of research done in this area hitherto is relatively small. Among the few works, the dominant theme involves detecting clickbaits amid non-clickbaits by employing classification methods based on a set of features [1], [3], [10]. These studies suggest that clickbaits can be identified through a consideration of textual cues embedded in their linguistic patterns, including the use of suspenseful language, punctuation patterns, forward referencing, and unresolved pronouns.

However, the literature has shed little light from the perspective of users' considerations for clicking such clickbait headlines. Drawing from the literature on information processing [11]-[13], this paper argues that individuals' intention to click clickbaits can be predicted as a function of three considerations: cognitive, affective and pragmatic. Cognitive consideration refers to the process of effortful thinking attached to the utilitarian dimensions, whereas affective consideration deals with emotive aspects of one's experience related to hedonic dimensions. In addition, pragmatic consideration refer to the factors associated with individuals' availability of resources [11]. Thus, the understanding of the antecedents of user clicking behavior will add a new dimension to current clickbait literature.

Hence, the objective of this paper is to investigate how the three considerations for clicking are associated with intention to click clickbaits. This paper specifically studied the behavior of healthcare personnel while considering health and non-health clickbaits. This further allows to investigate the following research question: How do

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healthcare personnel's intention to click differ between health and non-health clickbaits?

II. LITERATURE REVIEW

Clickbait is viewed as a derogatory concept almost synonymous to fake news. It refers to web links designed to generate revenue by attracting perusal and subsequently propagation of its material online. This is achieved through sensationalist headlines or pictures, and usually at the expense of article quality and factual accuracy [14].

Clickbaits have hitherto been studied both in terms of its characteristics and effects. With respect to the characteristics of clickbaits, prior studies have strived to distinguish clickbait amid other online content [2], [10], [15]. These studies used features such as suspenseful language, unresolved pronouns, a reversal narrative style and image placement to detect clickbaits from amongst other content using classification methods. They also suggest the presence of informalities: quotes, exclamations, upper case letters, and the asking of questions in clickbait headlines.

With respect to the effects of clickbaits, prior studies have explored its detrimental effects to publishers and users. To the publisher, clickbaits threaten to jeopardize journalistic integrity and taint other articles published under the journalistic brand [2], [7]. For readers, clickbaits distract and cause cognitive overload, impairing their ability to retain news from legitimate articles [1]. Growing enmity towards clickbait has been the impetus for efforts to identify and purge clickbait content found disseminating throughout networks [16].

From a user's perspective, intention to click has been categorized into cognitive, affective and pragmatic considerations [11]. Cognitive considerations might prompt clicking if the headline were deemed relevant and important. Conversely, other cognitive considerations might deter clicking, such as the over-saturation of news. Affective considerations might prompt clicking when headlines or images arouse emotions such as fear, curiosity or delight. Conversely, affective considerations might deter users from clicking when headlines are petty, disgusting or annoying. Pragmatic considerations are factors unrelated to the headline itself, such as limited time, restricted data bandwidth or monetary costs. Users' intention to click have been investigated in online contexts such as social network advertisements and brand posts [7], [17], [18]. However, to date, such studies have not investigated users' intention to click clickbaits.

In spite of a plethora of research on healthcare personnel's online behavior, there exists a dearth of literature specific to their intention to click. A prior study has identified cognitive and affective factors such as personal beliefs and emotions to be correlated to healthcare personnel's general intentions and behaviour [19]. Another study concluded that when searching for medical literature, pragmatic consideration like accessibility and convenience took precedence over cognitive consideration like information breadth and occasional inaccuracies [20]. Currently healthcare personnel's intention to click remains a missing piece of the jigsaw, and it would be interesting to

further study the interplay of their considerations for clicking.

III. RESEARCH METHODS

For the purpose of the experimental stimuli, four clickbaits (two health clickbaits + two non-health clickbaits) were chosen from the website *buzzfeed.com*. This website was chosen because prior studies often used this as a source to select clickbait headlines [1], [3]. The clickbait headlines are provided in the Appendix.

An online data collection platform, Qualtrics, was used to distribute the questionnaire. The participants were provided the URL for the study website, which contained the informed consent upfront. Guided by previous studies [21]-[23], participants were instructed to imagine that they were checking online news about Apple Inc.'s iPhone and iPad. A screenshot of a Yahoo! search showing hits for articles related to Apple Inc. was used, with clickbait headlines displayed on the right side. To minimize the order effects, a Latin Square design was employed to present the clickbait headlines.

For each of the clickbait headlines, intention to click was quantitatively measured by participants' responses to items such as "I am inclined to click this headline" and "I like to click this headline" [13], [17]. A five-point Likert scale that ranged from 1 (Strongly disagree) to 5 (Strongly agree) was used to capture participants' responses. Numerical responses to the items were averaged to create a composite index. Higher score in this index indicates greater intention to click. Similarly, the participants' responses to the questionnaire items for the three considerations—cognitive, affective, and pragmatic—were captured for each of the clickbait headlines. All the questionnaire items were informed by the previous studies, and pilot tested [11], [12], [18]. Specifically, cognitive consideration was captured using items such as "I want to have complete information about this headline." Affective consideration was captured using items such as "This headline makes me feel excited." Finally, pragmatic consideration was captured using items such as "I would like to click this headline when I have nothing better to do." The value of Cronbach's Alpha for all constructs exceeded 0.7, confirming their reliability.

Data were anonymized to remove any identifiable information. Participants were informed that they were free to withdraw from participation at any point in time. To increase response rate, monetary incentive was offered as a token of appreciation.

Data were collected from 96 healthcare personnel including doctors, nurses, allied healthcare professionals, and medical students in clinical posting. Participants were recruited using convenience sampling from a public hospital in Singapore.

For the purpose of data analysis, hierarchical moderated multiple regression was used. The dependent variable was intention to click clickbait headlines. It had three hierarchical models of independent variables. The first model contained two control variables: presentation of clickbait and topic of clickbait. Presentation of clickbaits encompassed textual and pictorial format. Topic of clickbaits included health and non-health. The second model

comprised the three considerations: cognitive, affective, and pragmatic. The final model included the product terms created to capture the moderating role of clickbait topic. Before fitting the data into a regression model, the product terms were standardized to alleviate multicollinearity problems. Furthermore, the variance inflation factor (VIF) values were checked, confirming that multicollinearity was not a problem.

IV. RESULTS

Table I presents the descriptive statistics of the dataset in terms of three considerations and intention to click. Table II presents the regression results for intention to click. After accounting for the control variables, the three considerations for clicking explained 77.4% of the variance in intention to click. The explanatory power of the final model was 79.5%.

TABLE I
 DESCRIPTIVE STATISTICS (MEAN ± SD)

	Health clickbaits	Non-health clickbaits
Cognitive consideration	2.64 ± 1.15	2.54 ± 1.20
Affective consideration	2.19 ± 1.02	2.19 ± 1.06
Pragmatic consideration	2.69 ± 1.26	2.72 ± 1.31
Intention to click	2.45 ± 1.14	2.39 ± 1.19

With respect to the control variable, the topic of clickbaits showed a non-significant association ($\beta = 0.01$, $p > 0.05$). With respect to the three considerations for clicking, cognitive consideration was positively related to intention to click clickbaits ($\beta = 0.63$, $p < 0.001$). Similarly, affective consideration ($\beta = 0.25$, $p < 0.001$) as well as pragmatic consideration ($\beta = 0.10$, $p < 0.001$) showed positive relations with the dependent variable. With respect to the product terms, the topic of clickbaits was found to moderate the relation between cognitive consideration and intention to click ($\beta = -0.13$, $p < 0.05$). However, it failed to moderate the relation between affective consideration and the dependent variable ($\beta = 0.08$, $p > 0.05$) as well as that between pragmatic consideration and the dependent variable ($\beta = 0.04$, $p > 0.05$).

To delve deeper into the significant moderating relation, a correlation analysis was conducted separately for health clickbaits and non-health clickbaits. The correlation between users' cognitive consideration and intention to click was weaker for health-related clickbaits ($r = 0.83$, $p < 0.001$) vis-à-vis non-health clickbait topic ($r = 0.89$, $p < 0.001$).

V. DISCUSSION

Three findings are gleaned from the results. First, the three considerations—cognitive, affective and pragmatic—are able to explain intention to click clickbaits for healthcare personnel. As shown in Table 2, the three considerations were significantly related to healthcare personnel's intention to click clickbaits. Extant literature has documented the antecedent role of these considerations in predicting users' online behaviors, such as intention to click digital news and responses to social media advertisement [11], [12].

However, to the best of the author's knowledge, this is the earliest work to investigate the three considerations in the context of clickbaits. Specifically, it finds that the considerations for clicking can explain healthcare personnel's intention to click clickbaits.

TABLE II
 HIERARCHICAL MODERATED MULTIPLE REGRESSION RESULTS

Quantity	Model 1	Model 2	Model 3
Presentation of clickbaits	-1.33*	0.047	0.04
Topic of clickbaits	0.027	0.006	0.01
Cognitive consideration		0.533***	0.63***
Affective consideration		0.301***	0.25***
Pragmatic consideration		0.133***	0.10*
Topic of clickbaits x Cognitive consideration			-0.13*
Topic of clickbaits x Affective consideration			0.08
Topic of clickbaits x Pragmatic consideration			0.04
Incremental R ²	1.8%	77.4%	0.2%
Total R ²	1.8%	79.3%	79.5%

***p < 0.001, **p < 0.01, *p < 0.05. Model 1 included one control variable, Model 2 included three considerations, and Model 3 included product terms.

Second, cognitive consideration is more impactful than affective and pragmatic considerations in predicting healthcare personnel's intention to click clickbaits. This finding augments others that found cognitive consideration is more likely to be significantly correlated with intentions and actions than emotional charges for healthcare personnel [19]. Nonetheless, affective and pragmatic considerations were also found to play significant roles in predicting intention to click. With respect to affective consideration, prior studies found that evoked emotional states are key in predicting users' behaviors and virality of online content [24]. In fact, emotional appeal motivates individuals to form and effect behavioral intentions [25]. Contrary to other findings where emotional appeal failed in predicting users' responses to social media advertisement [12], this paper found a significant role of affective consideration in the context of clickbaits. With respect to pragmatic consideration, prior studies found that individuals may prefer passing time (busying oneself with activities outside of the daily routine) by viewing online content [18], [26], [27]. Thus, the availability of time is expected to reflect favorably on the intention to click clickbait headlines that appear during Internet use, as is reflected by the findings of this paper.

Third, in the context of healthcare personnel, cognitive consideration showed a weaker correlation with intention to click health clickbaits vis-à-vis non-health clickbaits. This finding echoes the sentiment that healthcare personnel are less likely to buy into health information [28]. Given healthcare personnel's relevant knowledge, prior unsatisfactory experience with health clickbait's sensationalist headlines and deficient content could have ingrained a general attitude of skepticism and reinforced avoidance [14], [29]. Consequently, rather than consciously appraising the cognitive appeal of the health clickbait itself, healthcare personnel could be deterred from clicking based

on principle, contributing to the reduced association between cognitive considerations and intention to click.

VI. CONCLUSION

This paper examined healthcare personnel's intentions to click clickbait headlines in terms of individuals' considerations for clicking, and the topic of clickbaits. The results indicated that the three considerations are able to explain healthcare personnel' intention to click clickbaits. Specifically, cognitive consideration is the most impactful in predicting intention to click. However, it showed a weaker correlation with intention to click health clickbaits vis-à-vis non-health clickbaits for healthcare personnel.

The paper accrue both theoretical and practical benefits. On the theoretical front, this paper extends existing literature of clickbaits from the perspective of users' clicking behaviors. Previous studies have often been geared towards detecting clickbaits [1], [2], [10]. However, users' perceptions about clickbaits and their clicking behaviors received little attention thus far. Guided by the literature of information processing as well as users' perceptions about online news and advertisement, the paper made an earliest attempt to explain users' considerations for clicking clickbaits.

On the practical front, these findings find application in both media and healthcare sectors. To social media platforms and journalism websites, this paper provides a better understanding of users' considerations for clicking clickbait headlines. Websites' authorities starting form journalism to social media, as well as individuals can get benefits by knowing how readers of clickbaits allowed themselves to be swayed by such ostentatious headlines. This can improve user experience in the content marketer's arsenal of the Internet. Within healthcare, better understanding user clicking considerations helps better identify and filter virulent health clickbait in circulation.

Limitations in this paper must be acknowledged. This study's participants were recruited by convenience sampling from a single healthcare institution. Ideally, questionnaire responses should have been procured from multiple institutions using randomized sampling. Doing so could have allowed for cross-comparison, a larger sample size, and a more representative sample population. These improvements would have ensured better generalizability of the findings. Hence, the findings need to be interpreted in the context of the paper.

Value exists in extending future studies to the lay users. The juxtaposition of findings from healthcare vis-à-vis lay users could highlight differences in the perception and receptivity towards clickbait headlines.

APPENDIX

The texts of the four clickbait-headlines used in the paper are as follows:

Clickbait 1 (health): 21 Unexpected Things People Do To Cure Headaches

Clickbait 2 (health): 17 Secrets Your Dentist And Hygienist Will Never Tell You

Clickbait 3 (non-health): 21 Insanely Easy Ways To Make And Save Money

Clickbait 4 (non-health): Common Phrases That You've Been Saying Wrong Your Whole Life

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